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THE

TREATMENT OF RHEUMATIC DISEASES

BY

LEMON JUICE.

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THE TREATMENT OF RHEUMATIC DISEASES BY LEMON JUICE:

WITH

ILLUSTRATIVE CASES FROM HOSPITAL PRACTICE.

BY

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ON THE

TREATMENT OF RHEUMATIC DISEASES

BY

LEMON JUICE.

In a recent number of the Medical Gazette I directed attention to the beneficial effects produced by the exhibition of lemon juice in rheumatic diseases. Since the publication of that notice the remedy has been used by several practitioners with very marked success; so much so, indeed, that I am inclined to believe we may now consider it quite as efficacious, if not more so, than any of the preparations of colchicum, which have for so many years enlisted the confidence of the profession in acute rheumatic affections. Lemon juice certainly lowers the pulses of those suffering from acute rheumatism in as marked a degree, and as quickly, as colchicum does, when exhibited in medicinal doses, while the early relief from pain is such as we seldom obtain by the use of the latter remedy.

During our experience at Guy's Hospital, several of the cases of rheumatism treated by lemon juice have

recovered with a rapidity almost unprecedented, considering the severity of the symptoms. Other cases, as might have been expected, though they have gone on satisfactorily to cure, have not shown themselves quite so quickly amenable to the plan of treatment. In such cases the lemon juice treatment has been adopted with such modifications as the case may have been thought to require. The progress, however, of the disease, as observed even when most obstinate, under the use of this new remedy, will, I think, be found to bear a very favourable comparison with the history of those cases in which the old plans of treatment have been had recourse to.

The form of rheumatic disease in which the greatest benefit would appear to have been derived from the use of lemon juice, is that of acute rheumatism, and that form of rheumatic affection involving the smaller as well as the larger joints in acute inflammation, and known as rheumatic gout.

In cases of pure gout, in which the inflammation is high, I hear that great advantage has been observed, while in subacute and more chronic forms of the disease the same marked benefit has not been experienced. Neither do we observe in acute rheumatism that benefit accrues from continuing this remedy when the inflammatory symptoms have been checked, and debility remains.

In chronic rheumatism I have apparently observed some benefit from the remedy; but lengthened experience alone can determine the question of efficacy in so lingering and capricious a disease.

I shall now proceed to detail several cases which have been treated according to my plan, and in doing so have more especially to acknowledge the liberality and kindness of my friends and colleagues — Drs. Addison, Babington, and Barlow, and also the assistance of their clinical reporters.

Case I.—Acute Rheumatism—Lemon Juice for Acute symptoms—After Treatment by Tonics.

Elizabeth Radford, admitted April 11, 1849, into Guy's Hospital, under the care of Dr. Babington; aged 22 years. Has not been well for six months. Suffering occasionally from rheumatic pains. Her knees and ankles have now become suddenly red, swollen, and painful, and her elbow and shoulder-joints are also affected. Pulse 110; skin moist. Ordered—

> Pulv. Jalapæ compositus, ʒj. statim.
> Succi Limonis, ℥j.; Syr. simplicis, ʒij. ex Aqua, ʒv. ter die.

12th.—Passed a bad night; thirsty; bowels confined; passed about 1½ pints of urine. Ordered—

> Extracti Colocynthidis Co. gr. x. statim.—Haustus Sennæ post horas duas. — Repetatur Mistura.

13th.—Bowels acted freely last night; pulse 100; skin moist, and not so hot; legs and ankles less painful; right ankle swollen more; slept well.

Repetatur Mistura.

14th.—Much improved in every respect; has felt nauseated occasionally.—Pergat.

16th.—Swelling of joints has nearly subsided; pulse 74; skin cooler and less moist.—Pergat.

17th, 18th, and 19th.—Has gradually improved, and to-day has taken middle diet; Pulse 68.—Pergat.

21st.—Some threatening of return of pain; feels weak; pulse 65. Pergat.

22nd to 26th.—Pains have occasionally occurred; to-day is better; pulse 72, and weak. Ordered—

Decoctum Cinchonæ cum Sodâ.

30th.—Some œdema of the ankles, apparently from weakness. Ordered—

Tinct. Ferri Sesquichlor. ♏x.; Sp. Æth. Nit. ʒss.
ex Aqua Menthæ, ter die.

May 8th.—Has gradually regained strength, and is presented to-day for discharge.

In this case, when the acute symptoms had yielded to lemon-juice, that remedy (from the 21st to 26th) did not appear to exercise any very beneficial influence, and the weakly condition of the patient was more relieved by tonic treatment. It especially illustrates

the action of the juice as an antiphlogistic remedy, and one exercising a marked influence on the pulse.

Case II.—Rheumatism (Rheumatic Gout)—Lemon Juice alone—Cure.

Eliza Allwright, a young girl, aged 18, of a sanguine temperament, with auburn hair and of a fair complexion, admitted into Miriam Ward to-day (Dec. 8th) as a patient under Dr. Rees. She is suffering from rheumatic gout in all her joints, and is unable to move, the slightest attempt at motion giving her the most severe pain. She states that she is a housemaid residing at Islington. About a month ago she caught a severe cold, and was confined to her bed for a week. She recovered from this, and considered herself perfectly well, but about a week since was suddenly seized with shivering and nausea, and experienced severe pain down her leg, commencing at the hips. Her ankles also swelled considerably. In a day or two she felt great pain in her knees, which also became much swollen, and she entirely lost the use of her legs. Yesterday, Dec. 7th, she felt pain in her shoulders, which gradually extended down her arms to her wrists, and she then lost the use of both arms. The elbow- and wrist-joints are exquisitely painful, but are not very much swollen. She perspires profusely, and is

very flushed and feverish. Pulse about 120, and full. Her tongue is covered with a thick moist white fur. Ordered—

Pulv. Rhei c. Calomel ℈j. statim.
Succi Limonis, ℥ss.; Mist. Camphoræ, ℥j. ter in die.

9th.—Appears a little better; perspires less, and feels less pain; swelling not diminished. She can move one arm very slightly. Pulse 75, less full.

11th.—Feels less pain.

12th.—Can raise her legs in the bed, and also use her arms: the pain has much abated. To continue the medicine.

13th.—Much better; pain entirely gone; is able to get in and out of bed without assistance. Pulse weak, but natural. Her bowels not having been relieved for two days, she was ordered—

Pulv. Rhei c. Calomel ℈j. statim.

14th.—Still improving; feels no pain; swelling much abated; urine* acid; in quantity only about 1 pint in 24 hours; specific gravity, 1032.—To continue the same medicine.

16th.—Complains now of great weakness; has not felt the slightest pain since the 13th; her appetite is good, and she sleeps well.—Pergat. Urine, specific gravity 1020.

* With regard to the urine it was uniformly scanty in quantity throughout the whole case, and also constantly *acid*.

18th.—Improving; expresses a desire to get up, and to have some meat.—Pergat. Urine, specific gravity 1025.

20th.—Feels perfectly well, with the exception of slight weakness. Urine contains a large amount of lithates.

22nd.—To discontinue the lemon-juice, and to take—

Mist. Ferri. Co. ter in die.
Pil. Aloes c. Myrrhâ, gr. x. o. n.

23d.—Complains of a little pain (due probably to change of weather).

24th.—Pain gone; feels herself getting stronger.

25th to 27th.—Feels quite well, and talks of going out soon.

Case III.—Acute Rheumatism—Lemon Juice—Cure.

John Berry, aged 19; ill one week; admitted April 25, 1849, into 21, Lazarus Ward, under the care of Dr. Addison. He is a messenger, living in Spitalfields, much exposed to vicissitudes of weather and temperature; is of steady habits. Had a severe attack of rheumatism two years ago, which lasted seven weeks;

the heart was not implicated that he is aware of; always enjoyed good health previous to and since the attack.

Has no hereditary tendency to disease. He states, a week ago was seized with severe pain in the ankles and feet, which soon began to swell. Shortly after, the other joints, especially the wrists and knees, became similarly affected. The attack was accompanied with great febrile disturbance, and completely crippled him, having been confined to his bed for more than a week. Has taken nothing but a little aperient medicine.

Present Symptoms and Appearance.

He is a tall, strong-made boy, with dark hair and eyes, of sanguineo-bilious temperament. The countenance has a greasy, sweaty appearance, and is expressive of anxiety and acute suffering. The skin is intensely hot and sweaty. The following joints are considerably swollen and hot, and the skin over them is marked in red streaks, and they are very tender to the touch: viz. both ankles, feet, knees, right wrist, and both shoulders. He is in constant pain, it being of the character usual in rheumatism, gnawing and tearing. There is great febrile disturbance; the tongue covered with a moist brownish fur; the bowels confined; appetite lost; great thirst; with a full hard pulse of 108. Urine high-coloured, clear, acid; in quantity a pint and a half; specific gravity 1017: not coagulable. The symptoms are always aggravated at night, and in

consequence he gets no sleep, and sweats profusely, the secretion being of an acid sourish smell.

Chest.—Resonant, and respiration free.

Heart.—Sounds normal; no uneasiness about the organ to indicate pericardial affection.

The pulse to be recorded carefully, and the state and quantity of urine. Low diet.

℞ Succi Limonis recent. ℥ss.; Syr. simp. ʒij. ex Aq. Pura, ℥v. t. d. s.
Pulv. Rhei Salin. ℈j. stat. s.

26th.—Bowels freely opened; passed a feverish and painful night, without sleep; no abatement of any of the symptoms. The left wrist is now swollen, red, hot, and painful. Pulse 108, full, not quite so hard. Perstet.

27th.—Still no appreciable abatement of the pain; swelling of the affected joints; passed a sleepless night, and in much suffering; the tongue cleaner. Urine clear, acid, without any deposit; in quantity a pint and a half; specific gravity 1025. Pulse full, softer, 106.

Rep. Pulv. Rhei Sal., et augeat. dos. Succi Limonis ad ℥j. sextis horis.

28th.—Bowels were freely opened yesterday; passed a better night, the pain in the joints not being so severe; the heat, swelling, and tenderness, are less; says he feels much better and easier, which the expres-

sion of countenance confirms, it having lost greatly its anxious look; skin still hot and sweaty; thirst abated. Pulse is full, compressible, 96. Urine acid, clear, a pint and a half; specific gravity 1025.—P.

29th.—The only change is in the pulse, which has sunk as low as 86, full, and compressible.—P.

30th.—Passed a better night than he has done since admission, having had two or three hours' good sleep; has noticed the nocturnal exacerbation less strongly marked the last two nights; the swelling and pain in the joints subsiding in those first attacked. The disease is now developing itself in the knuckles of the right hand; the tongue more furred; bowels freely opened. Urine, pint and a half, clear, acid; specific gravity 1030. Pulse smaller, soft, 108.

May 1st.—Passed a worse night, the symptoms having been more aggravated; he complains of pain in the loins, and that of the knees and right hand more intense than usual. Pulse 88, soft, compressible; skin hotter, and sweaty; bowels are freely open. Urine, pint and a half, acid, clear; specific gravity 1020.—P.

2d.—The pain has chiefly fixed itself in right hand, wrist, and shoulder, which are still considerably swollen, hot, and tender. Pulse 82, soft; urine unaltered.—P.

3d.—Passed comparatively a good night, the pain in the joints having been but trifling. Pulse 82, soft. Urine, two pints, clear, acid; specific gravity 1020.—Pergat.

4th.—Continues the same; bowels confined; pulse 96. Haust. Aperiens stat. s.—P.

7th.—On the 5th pulse was 82, soft and full; quantity of urine passed being two pints and a quarter, of specific gravity 1015, clear and acid. To-day the pulse is full, soft, 80. Urine, clear, acid; two pints; specific gravity 1018. He complains now of but very little pain in right wrist, it having, with the swelling, entirely subsided in the other joints. There is scarcely any febrile disturbance; the skin continues sweaty and hot.—P.

9th.—Slept well; the night was passed free from sweating. There is a return of pain in the left shoulder and hand, the right being nearly free. His appetite is returning; pulse 86, soft. To-day a slight pinkish sediment was noticed for the first time on the side of the urinal. Urine high coloured, acid; two pints; specific gravity 1018.—P.

11th.—Got up yesterday for the first time; is very weak, and much thinner. The night passed free from pain; has no pain but in the left elbow, which is not swollen nor hot. The skin is cool, soft, not sweaty. The bowels are open. Urine clear, acid, no deposit. Pulse small, soft, 100; inclined to be irregular. Tongue still furred. Heart's sounds healthy. To have fish for dinner.—P.

14th.—Has no swelling in any of the joints. The pain has shifted from the left to the right elbow; no swelling nor increased temperature of the joint. Pulse small, feeble, and quick; bowels open from aperient. Urine continues clear and acid; a pint and three

quarters; specific gravity 1015. Tongue white; skin sweaty.—Pergat.

16th.—Has only the slight pain in the elbow; appetite good, and is convalescing fast.—P.

18th.—There is a return of pain and swelling in the left knee and knuckles of right hand; no febrile disturbance. Urine appears the same as the last; bowels confined.

Haust. Magnes. c. Magn. Sulph. stat. s.—P.

22d.—The swelling in the knuckles of the hand and knee has gone down, and he again feels free from pain. Urine clear, acid; specific gravity 1018; not quite two pints.—P.

26th.—Has been down stairs, and feels well, except weakly; appetite becoming good. Pulse small, feeble, and quick, apparently from weakness. To have middle diet. Urine, two pints and a quarter, acid, clear; specific gravity 1012. On the 24th he had, during the night, a severe pain in the region of the heart, which lasted two or three hours, gradually subsiding towards morning. On examining the heart it was found acting regularly; no increase of impulse; auscultation could detect nothing wrong. The pain has not since returned. Convalescent.—P.

Case IV.—Rheumatism—Venesection—Lemon-Juice—Cure.

Cornelius Bowen, admitted into 14, Naaman Ward, April 11, 1849, under Dr. Babington; aged 25. Ill six weeks; lives at 21, Long Lane, Bermondsey; porter at an upholsterer's in the Borough; married; has had five children; two only are now living. Three years ago was laid up for three weeks with rheumatism, and about a year back was laid up for four or five days with the same complaint. Has frequently had slight attacks, since his occupation has necessarily caused him to be exposed much to the weather. At the commencement of the present attack the left great toe first became affected. The pain soon went away; then returned in the knuckles of the index and middle fingers of each hand, right elbow, right knee, and ankle. All of these joints are now swollen and painful, the patient being unable to use them.

℞ Succi Limonis recentis, ℥ij.; Syr. Simpl. ℥ss.; Aquæ, ℥viij. Fiat mistura in diem sumenda.

12th.—No sleep in the night; pulse 66 a minute; skin natural; passed to-day two pints of urine (1 P.M.)

13th.—Slept well; pulse 60; leg is better; passed to-day one pint of urine (1 P.M.)

14th.—Left ankle was very painful in the night, which prevented him from sleeping; pulse 80; bowels

open; passed since yesterday two quarts and a half of urine.

16th.—Had a bad night; left leg is very painful, he cannot move it at all; skin natural; pulse 84; passed, since 14th, three pints of urine.

℞ Repetatur Succi Limon. recent. ℥j. ter die;
Pulv. Jalap. Co. ʒj. statim; Venæsectio ad ℥xij.

17th.—Better night; bowels acted freely; skin moister; pulse 86. Since yesterday he has passed half a pint of urine.

18th.—Less pain in joints; pulse 84. Passed three pints of urine.

19th.—Swelling and pain have gone from the left knee; pulse 84. Passed two quarts of urine.

20th.—Can move his joints better: there is less pain: pulse 84. Passed two quarts of urine.

21st.—Bad night; pulse 80; swelling has nearly subsided in all the joints. Passed one quart of urine.

23d.—Feels getting much better. Since 21st has passed two quarts of urine per day.

24th.—Knuckles, as well as right knee and ankles, are only stiff; pulse 82. Passed one pint of urine.

25th.—Bad night; left knee was very painful; pulse 84. Passed three pints of urine.

26th.—There is a swelling on the outer side of left knee; pulse 82. Passed two quarts of urine.

Empl. Canthar. ad genu sinistr.

28th.—Blister rose well; about one pint of discharge

came from it, according to patient's statement. Appetite good; skin natural; pulse 80. Since 26th he has passed three pints of urine.

30th.—Got up to-day the first time for three weeks. Pain has almost gone in the left knee. Since 28th has passed five pints of urine.

℞ Dec. Cinchonæ, ℥j.; Succi Limonis, ʒij.; Syr. Simplicis, ʒij. t. die.

May 3.—Has rheumatism only in the left knee and ankle; in every other respect he is going on well. The quantity of urine that he passes now is much the same as when he is in health; it is clear, of a pale straw colour.

Linim. Terebinth. ad genu.

8th.—Left knee and ankle continue stiff; going on well.

11th.—Left knee swelled a good deal last night. By simply rubbing it with his hand the swelling has subsided; pulse 80; appetite good; he is on full diet.

14th.—Going on well; left knee is stiff.

16th.—Had a bad night; left knee was very painful, it is better now; he is lying in bed to-day.

18th.—Knee to be strapped; urine clear, straw-coloured, acid, sp. gr. 1017.

20th.—Complains of rheumatic pain in his left instep; left knee is swollen and painful on the inner

side; urine acid, sp. gr. 1017; he has taken the strapping off his knee, it having become worse since its application: in other respects was going on well.

22d.—Pain has gone from his instep, as well as from the inner side of his left knee, the anterior part of which is slightly swollen; three boils have appeared on its outer side, which are painful.

26th.—He feels better than ever to-day; instep is quite well, also the left knee, with the exception of two little boils, which are getting well.

28th.—He has perfect use of all his joints, and feels perfectly restored to health.

Case V.—Rheumatism—Probable Syphilitic Complication.

George Taylor, aged 35, admitted May 9th, 1849, under the care of Dr. Barlow: painter and glazier, living at Rotherhithe: has drank freely of gin: been subject to rheumatic attacks for 13 years. Within the last year and a half was seized with an attack of fever, during which he states that his nails and skin peeled off, and a blister was applied over his heart. After getting well, he recommenced work, but was obliged to lay by two weeks since, for pains and swellings in the hands, &c., for which he is now admitted.

May 9th.—At present he is moderately stout, with very dusky colour of skin; right hand is not so inflamed as the left, which is very painful on motion; the left knee is swollen, tender, and hot; and the foot of the same side is also tender on the outer side; heart's action natural; bowels costive; tongue dry, covered with brownish fur; skin hot and moist; pulse full and strong, 88; urine clear, specific gravity 1020, rendered flaky by heat; phosphates precipitated.

℞ Pulv. Rhei c. Cal. gr. xx. statim.
Haust. Sennæ post horas quatuor.

10th.—Bowels have been open three times since taking the medicine; has slept badly, having been much disturbed with dreams; the left hand is much better, but the left knee has been in considerable pain all night; tongue more moist and less furred.

Succi Limonis, ʒvij.; Syrup. ʒj.; Aquæ, ℥iv. ter die.

11th.—Much the same; joints have been in great pain last night; no pericardial affection, nor does he experience any præcordial uneasiness; pulse full, 92.

12th.—The right hand is exceedingly painful and inflamed; left knee and foot not much swollen, but very tender; bowels keep regular; urine, which was previously high coloured and coagulated by heat, is now pale and not affected by heat, and slightly acid.

15th.—Still gets bad nights, but is certainly better

than he was; the inflammation has quite left the knee, but the left foot continues very painful; the swelling and redness have nearly left the right hand; tongue clean; skin moist; pulse soft, 72.

16th.—Has had a very tolerable night; limbs are all improving.

17th.—Bowels have not been open since the day before yesterday; pulse is quiet, and much weaker since taking the lemon-juice.

Cont. Med. bis die.

℞ Haust. Sennæ c. Vin. Colchici, ♏xx. statim.

18th.—Bowels have been twice relieved; the left foot is less swollen, but has been very painful in the night.

21st.—Wakes up frequently in the night with pain in the right hand, left foot, and knee, but they are not at all swollen; patient seems emaciated since his admission.

22d.—The urine, which was very much clouded by heat on admission, is still rendered dim, but not in the slightest degree affected by nitric acid.

Tr. Iodinii articulis affectis.

24th.—Bowels are not open; the pain has been most severe in the right hand through the night.

℞ Haust. Sennæ c. Vin. Colchici, ♏xx. statim.

25th.—Bowels have been relieved.

26th.—At present he suffers very little from his limbs except at night, and the phalangeal joints of the right and left hands are only stiff and rather enlarged; he complains of great thirst, especially after sleep. His urine, as measured during the last twenty-four hours, is Oiij. ¾, of a pale yellow colour, specific gravity 1019, very acid, unaffected by heat or nitric acid.

June 1st.—The right hand and knee have been rather swollen and inflamed, probably owing to the rapid healing of an ulcer on the leg; a linseed-meal poultice is now applied in the place of strapping; he has passed a tolerable night, and perspires freely this morning. The perspiration has the peculiar sour smell of rheumatism.

2nd.—The left knee is a little swollen, but in less pain. He complains to-day of a swelling on the ulna, about 1½ inches from the olecranon, which he states has come on within the last two days; it is but little tender, and the integuments can be lifted up, leaving a hardness beneath them very like periosteal enlargement; there is no history or scar of syphilis, but the glands in both groins seem enlarged and hard.

℞ Potass. Iodid. gr. ij.; Tr. Hyosc. ♏xx. ex Mist. Camph. ter die. Omitt. medicam. alia.

7th.—The swelling is gone down. It appears to have been a mere thickening of the structures between the ridge of the ulna and skin. All the joints are im-

proved; the ulcer is nearly healed; his tongue is clean, and he now only complains of weakness.

Case VI.—Chronic Rheumatism—Relief.

Philip Bastard, aged 36, ill one month, admitted under Dr. Addison, May 15, 1849: is a married man, residing in the City, by occupation a brazier. Has drank moderately, and been subject to great variations of temperature; his work is laborious; in general has enjoyed good health, with the exception of rheumatism in various forms, which commenced first about fourteen years since; the attacks varying in severity, and returning three or four times a year,—affecting hips, knees, ankles, toes, shoulders, elbows, wrists, and hands. The present attack commenced about three weeks since, in the fore finger of his right hand, subsequently affecting the knee and ankle of his left leg, and then the joints of the right arm and leg, which have been swollen, red, and very painful. He took lemon-juice for nine days in a pure form, but without any benefit: the joints became worse. He has been in the habit of using lead in large quantities in his business, the effects of which are very apparent by the wide-marked blue line around his gums: never had colic nor paralysis. On admission is a strong well-

formed man; now complains of pains in his limbs, stiffness and weakness in his ankles, knees, and hands; no swelling nor redness in any of his joints; cannot extend his fingers; the joints are enlarged, but not painful; tongue moist and slightly furred; headache at times; bowels open; temperature of skin natural; respires freely; urine, Oij. acid, straw-coloured, specific gravity 1017, clear and not coagulable; pulse 80, soft, regular, and compressible; respiration easy and natural; heart's action regular; sounds normal.

Succus Lim. Rec. ℥j. ex Aqua, t. d.

19th.—States he is much better; less pain in his joints; has general stiffness and weakness; perspires very freely; passes about three pints of urine in twenty-four hours, of the same character as before; no swelling nor redness in any of his joints; bowels not moved; tongue clean.—Pergat.

23d.—Feels very comfortable, and free from pain; joints weak and stiff, but not swollen; can walk along with the assistance of a stick, and is progressing favourably.

From this time to the 29th he gradually improved; could walk about without assistance; and was presented much relieved.

Case VII.—Acute Rheumatism.

Caroline Soley, aged 28; admitted May 30th, 1849, under Dr. Barlow. She is unmarried, and is a laundress; of temperate habits: her general health has been good, but she has never been strong, and has been a good deal exposed to damp and cold.

The catamenia appeared when she was about 14 years old, and have continued quite regularly ever since. She generally suffers a good deal of pain beforehand. For the last two months has been out of health, has felt weak and languid, lost her appetite, and fallen away.

Three weeks ago, after excessive work, she caught cold, and was seized with violent pains in the joints. The pains increased, and the joints became swollen and red, being alternately affected. She perspired very much. For the last week she has been compelled to keep her bed; her appetite is lost; she has wasted very much, and is troubled with a cough. She continued getting worse, being unable to move without considerable pain, up to her admission.

She is of youthful appearance; fresh complexion, cheeks flushed, hair light brown, eyes blue, the pupils rather dilated, conjunctivæ pearly white. The upper jaw rather projects. She has lost all the superior incisors, and her gums are very spongy. She is short, but otherwise well made, and very thin. She now

complains of general tenderness over the body, especially in the joints; the left wrist is swollen and inflamed. The left ankle and foot are also very swollen and red. She has a slight sore-throat. She complains of pain and a feeling of constriction in the præcordial region. She cannot sleep well at night, when the cough is more troublesome. Skin is very hot, and usually covered with copious perspiration of sour smell and acid reaction. No appetite, and she is very thirsty. The tongue is red and moist, being spotted with a white fur; gums are rather sore; she has a bad taste in her mouth: her bowels are not acted on, except with medicine.

Urine.—About a pint in 24 hours, of a thick reddish colour, with copious sediment; specific gravity 1030, acid reaction, cleared by heat.

Pulse.—Rapid, 122 per minute, rather sharp, but compressible.

Respiration.—About 30 times per minute, with a slight catch at the end.

Thorax.—Resonance good; respiratory murmur normal throughout.

Heart.—Præcordial dulness not increased; there is a slight bruit with the first sound, traceable up the aorta. Ordered—

Succi Limonis, ℥j.; Sacchari, ʒj.; Aqua, ℥iij. sextis horis.

May 31st.—She has not slept at all, and complains

of soreness of throat and mouth, and pain in the chest. The bowels have been opened. Ordered—

Gargarisma Boracis, et Pergat.

The left foot is not so much inflamed.

June 1st.—She had a better night; the wrist is less swollen, but there is rather more general pain and tenderness; pulse 105; tongue and mouth still very foul; throat better.

June 5th.—She is much improved; the pains are better; pulse 95.

June 7th.—She still improves; the wrist and ankle are well; there is a little pain in the shoulders; the acid perspirations are almost gone; urine is clear; pulse 83, rather feeble.

June 14th.—She has gone on steadily progressing, and is now convalescent.

Case VIII.—Acute Rheumatism—Lemon Juice—Cure.

Jane Lee, aged 19, ill 5 days, admitted into Martha's ward, under the care of Dr. Babington, June 13th, 1849; a servant, residing up to the period of her admission at Newington. This patient, who is a slightly

formed, dark-complexioned girl, was first attacked with rheumatism five days previous to admission, while standing in a wet wash-house. There is no history of any exposure to cold, or bad symptom of any sort, prior to this time. She suddenly felt severe aching pain in the right knee, which soon extended to the right arm, wrist, ankle, shoulder, hip-joint, back, and loins,—in fact, every part of her body was affected, with the exception of the left wrist-joint; she was in this state when admitted, and frequently cried out when in the taking-in room. The slightest touch aggravated the pain most acutely. Neither her father nor mother have suffered from rheumatism or gout at any time, and she herself has always enjoyed good health up till now. Bowels costive; passes urine freely; skin perspires freely; catamenia regular and natural; anorexia; no great headache; complains of thirst; tongue slightly coated and moist; pulse 124; urine, specific gravity 1013, clear and slightly alkaline. Ordered—

Succi Limonis, ℥j. ex Aqua, ℥iv. ter quotidie.
Low diet.

14th.—Rather better; not in so much pain as yesterday; can move her limbs slightly; bowels not open; pulse gone down twenty beats, being 104; perspires much; passed one pint and a half of clear urine from 4 P. M. yesterday to 4 P. M. this day; specific gravity 1015, still slightly alkaline. Ordered—

Pul. Jal. Comp. ʒj. statim sumend. et Rep. Mist.

15th.—Very much better to-day; bowels open; pulse still continues at 104; skin perspiring; passed only half a pint of urine in 24 hours; specific gravity, 1025, acid and clear. She is so much relieved that she managed to get out of bed this morning without assistance and without much difficulty.

16th.—Much better; quite free from pain of any kind, but feels very weak; appetite improved; pulse 70, full and strong; passed only 7 ounces of water; specific gravity 1020, acid.

17th.—Much better; entirely free from pain.

18th.—Ordered—

Succi Limonis, ℥ss. ex Aqua, ter die.
Middle Diet.

21st.—She is convalescent.

25th.—Getting strength; quite well; feels one ankle somewhat weak.

REMARKS.

The effects produced by Lemon Juice on the pulse are remarkably shown in Cases II. and III., and also in Case VIII. The determination of the quantity of solid matters excreted by the urine during the twenty-four hours is a point of considerable pathological interest, and I have been fortunate enough to obtain in two of the cases very exact returns in this respect. By making a calculation founded on the quantity of urine passed during the day, and its specific gravity, I found that in one of these cases (Case III.) the quantity of solid matter discharged increased as the patient improved. In Case VIII. however, in which the state of the urine was very carefully noted, this condition did not pertain; but, on the contrary, the solids so excreted diminished in quantity while the patient was becoming rapidly well.

The amount of urine passed by this girl was remarkably small, and it had an alkaline reaction at the

commencement of the disease, which however speedily disappeared under the use of the lemon juice.

As regards the question of cure by the excretion of some materies morbi from the blood, even if we admit this as the mode in which the return to a state of health is brought about, it does not appear reasonable to expect that in all cases we should find the kidneys the excreters of the morbific matter; inasmuch as the skin possesses very different degrees of energy in different persons, and in rheumatic disease its excretory power is called into full action. The skin may thus interfere with the regularity of any law laid down in respect to the state of the urine, as it can excrete not only water and carbonic acid, but also a large amount of solid matters during the day, when in the highly active state observed in rheumatism.

The use of Lemon Juice as a remedial agent has of late years been almost restricted to its administration as a cure for scurvy. It formerly would seem to have enjoyed some considerable reputation as an antisiphylitic. We learn from Percival's Works* that the juice of lemons has been found also of great service in certain biliary and stomach derangements, and, as the experience recorded is not without interest in connexion with the present subject, I shall here quote the author's words. After relating some experiments made on gall,

* Vol. iii. p. 105. I am indebted to my friend Dr. Theophilus Thompson for this and other references.

by the addition of lemon juice and other acids, he proceeds to express an opinion that the beneficial effect is to be traced to its power of "sweetening putrid acrimony." The facts recorded are, however, as may be imagined, more valuable than the theory propounded. Our author proceeds—"A tablespoonful of the juice of lemons unmixed with anything, is said by an ingenious writer (Whytt on Nervous Diseases), to have repeatedly proved a certain cure for a palpitation of the heart, after many of the medicines called anti-hysteric had been tried in vain. This conjecture is confirmed by a similar case which Dr Bisset hath related, of a middle-aged gentleman who had a palpitation of the heart, accompanied with some symptoms of the jaundice, and who was completely cured by drinking every evening weak rum, acidulated with the juice of Seville oranges."

Cases are also quoted by Percival, from which it would appear, that calculous diseases have been greatly benefitted by the use of lemon juice; so much so, indeed, as to have led to a belief that it possessed lithontriptic properties. Sydenham also recommends lemon juice and manna as a remedy for gravel, and speaks of its great efficacy in his own case. The account of his own sufferings and relief may be found in his Works,* in the chapter "de mictu sanguineo a calculo renibus impacto." He there

Page 522-3; edition published by the Sydenham Society.

relates how his nephritic affection formed the sequel to an attack of gout. The probability that the beneficial effects quoted by the authors cited were produced by lemon juice, is to a certain extent increased by the experience we have had in the treatment of rheumatic diseases: stomach derangement, disturbance of the function of the heart, and calculous nephritis, all bearing a relation to the rheumatic and gouty diatheses.

As regards the theory of the action of lemon juice in the cure of rheumatic and gouty disease I have but little to say. I recently published the view which I was inclined to take on the subject, but am by no means anxious to place it before the profession as anything but an extremely doubtful matter to my own mind; it being rather to the facts contained in the above cases that I earnestly beg attention.

Citric acid, the chief ingredient in the juice of the lemon, if considered in the anhydrous state, is composed as follows:—

Carbon	4	atoms
Hydrogen	2	"
Oxygen	4	"

This shows a great excess of oxygen over and above the quantity required to saturate the hydrogen present, and under such conditions it may be considered probable that when introduced into the stomach this excess of

oxygen may there be made use of to modify the results of the digestive process. Knowing then, as we do, that in the class of gouty and rheumatic affections there is a tendency to the introduction of lithic acid into the circulation, in what manner may we suppose this excess of oxygen to assist us? Let us first consider the constitution of lithic acid, and we shall observe the fact, so well known to animal chemists, that its elements may easily be converted into those of urea and carbonic acid, by the addition of water and oxygen. This will be at once apparent from the following diagram :—

1 atom of lithic acid	$C_{10}\ N_4\ H_4\ O_6$
4 atoms of water	$H_4\ O_4$
6 atoms of oxygen	O_6
	$C_{10}\ N_4\ H_8\ O_{16}$

equal to

2 atoms of urea	$C_4\ N_4\ H_8\ O_4$
6 atoms of carbonic acid	$C_6\ O_1$
	$C_{10}\ N_4\ H_8\ O_{16}$

It was reflecting on the exigencies of the case, more especially in reference to the necessity for a supply of oxygen, that the exhibition of lemon juice in gout and rheumatism suggested itself to my mind, and I moreover considered, that probably the small proportion of alkaline citrate present, which, by decomposition during digestion yields an alkaline carbonate to the blood, might assist in the cure. Whether there be truth or not in this theory matters little, in comparison with the discovery of a remedy, which, I believe, assists in obtaining earlier relief than has heretofore been the case, in a most distressing malady.

The most marked physiological effect produced by the exhibition of lemon juice is, perhaps, the great diminution in the action of the heart and the lowering of the pulse. The relief from pain is, however, so early obtained, and so much more complete than by other remedies similarly affecting the pulse, that I am disinclined to attribute it entirely to that quality. I was anxious to ascertain whether we should not observe some effect on the pulse by exhibiting the juice to a healthy person, and one of our clinical clerks, Mr. Sanders, immediately volunteered for the experiment. This gentleman took one ounce of the juice three times a day for three days, and carefully noted his pulse, which was naturally full, and 75 in the minute. After five doses the pulse became much weaker and more compressible, and numbered 70 in the minute; conditions accompanied by a feeling of general depression.

On the third day the pulse became as low as 66, and was very small and compressible. The urine was always acid, and also natural in quantity till the third day, when it increased somewhat; the specific gravity was then 1017, and there was a deficiency of lithic acid.

It is important to state that the urine has never been rendered alkaline by the administration of lemon juice; in Case VIII., indeed, in which it was alkaline before treatment, it became acid after the juice had been administered. These facts show that its beneficial effects are not attributable to the alkaline citrate contained in it. Had an alkaline condition been produced, then we might have concluded that its action was analogous to that obtained by the exhibition of salts of vegetable acids, such as the acetate and tartrate of potash.

In order, however, more satisfactorily to determine this question, I evaporated 20 fluid ounces of the lemon-juice of the apothecary's shop at Guy's Hospital, and incinerated the dried extract. On examining the ash it proved to contain only 22 grains* of alkaline salts, so that it is not possible to attribute the effects of the lemon-juice to the alkaline citrate it contains; the remedy evidently possessing a totally different

* This ash contained about 2·5 grains of chloride, and also some traces of phosphate, so we may fairly conclude that an ounce of the juice contains less than a grain of alkaline citrate.

therapeutical action. In so far, however, as its quantity may be supposed to go, we may regard the alkaline citrate as an advantage. Considering it as a remedy, however, its small proportion is such as almost to reduce the consideration to a par with the notions entertained by the devotees to a whimsical and vulgar absurdity.

In conclusion, I merely have to remark, that my object in bringing these observations before the notice of the profession is in order that a remedy which I believe to be of great value may receive early attention.

By selecting Hospital cases I have obtained better reports than could have been afforded in the experience of private practice; while I have secured the further advantage of the fullest amount of authenticity.

THE END.

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